

DISTRIBUTION OF *LATRODECTUS* (THERIDIIDAE), *ERESUS* AND *STEGODYPHUS* (ERESIDAE) IN KAZAKHSTAN AND CENTRAL ASIA

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The distributions of three *Latrodectus* species (*L. tredecimguttatus*, *L. dahli* and *L. pallidus*), and of three eresid species (*Eresus niger*, *E. tristis* and *Stegodyphus lineatus*) within the Kazakhstan-Central Asian region are analysed based on the literature and on original data. *Latrodectus tredecimguttatus* presumably occupies almost the entire Kazakhstan territory, while two other widow species are local and more southern: both of them are first recorded here within Kazakhstan. Preliminary morphological and mating analyses show that both '*Latrodectus tredecimguttatus*' and '*Eresus niger*' within the territory of Kazakhstan and Central Asia are composite species: the first consists of at least one species different from the European *L. tredecimguttatus*, and the second consists of at least three separate species. On a analysé la distribution de trois espèces du genre *Latrodectus* (*L. tredecimguttatus*, *L. dahli* et *L. pallidus*) et de trois espèces de la famille Eresidae (*Eresus niger*, *E. tristis* et *Stegodyphus lineatus*) dans la région du Kazakhstan et de l'Asie centrale d'après les données littéraires et originales. L'aire d'habitation de *Latrodectus tredecimguttatus* comprend, hypothétiquement, presque tout le territoire du Kazakhstan, tandis que deux autres espèces sont locales et plus méridionales: l'une et l'autre sont mentionnées ici pour la première fois pour Kazakhstan. L'analyse morphologique préalable et les expériences d'accouplement montrent que *Latrodectus tredecimguttatus* aussi bien que *Eresus niger* au Kazakhstan et à l'Asie Centrale sont des espèces collectives: dont la première se compose, au moins, d'une espèce différente de *L. tredecimguttatus* d'Europe et l'autre se compose, au moins, des trois espèces séparées. □ *Latrodectus, Eresus, Stegodyphus, distribution.*

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The genus *Latrodectus* (Theridiidae) and the family Eresidae have not been studied very much in Central Asia. Before 1950 only one *Latrodectus* species was known from the former territory of the U.S.S.R.—*L. tredecimguttatus* (Rossi), or 'karakurt'. Two years later, Spassky (1952) first reported *L. pallidus* O. Pickard-Cambridge from the western, desert regions of the Turanian zoogeographic province [=Turkmenistan territory]. Later Charitonov (1954) described the new subspecies *L. pallidus pavlovskii* from Turkmenistan (the so-called 'white karakurt'). Twenty years later Tystshenko and Ergashev (1974) found in Uzbekistan another black widow species, *L. dahli* Levi. Amongst the Eresidae, three species have previously been recorded: *Eresus niger* (Petagna), *E. tristis* Kroneberg and *Stegodyphus lineatus* (Latreille).

This paper deals with new collections and data relating to the two groups and species distributions. Also, we suggest that previous broad species concepts, especially within *L.*

tredecimguttatus and *E. niger*, must be revised.

MATERIALS AND METHODS

This work is based on material collected mainly by us in Kazakhstan and Central Asia. Our specimens were compared with those from Europe and North Africa. Spiders were examined in 70% alcohol using binocular microscopes MBS-1 and MBS-10. Preliminary experiments on mating between European *L. tredecimguttatus* and Widows from Kazakhstan were also carried out.

Abbreviations: BIN, Biological Institute, Novosibirsk, Russia; IZA, Institute of Zoology, Alma-Ata; MCZ, Museum of Comparative Zoology, Cambridge, Massachusetts, USA; MNHN, Muséum National d'Histoire Naturelle, Paris, France; ZISP, Zoological Institute, St. Petersburg; ZMMU, Zoological Museum of the Moscow University.

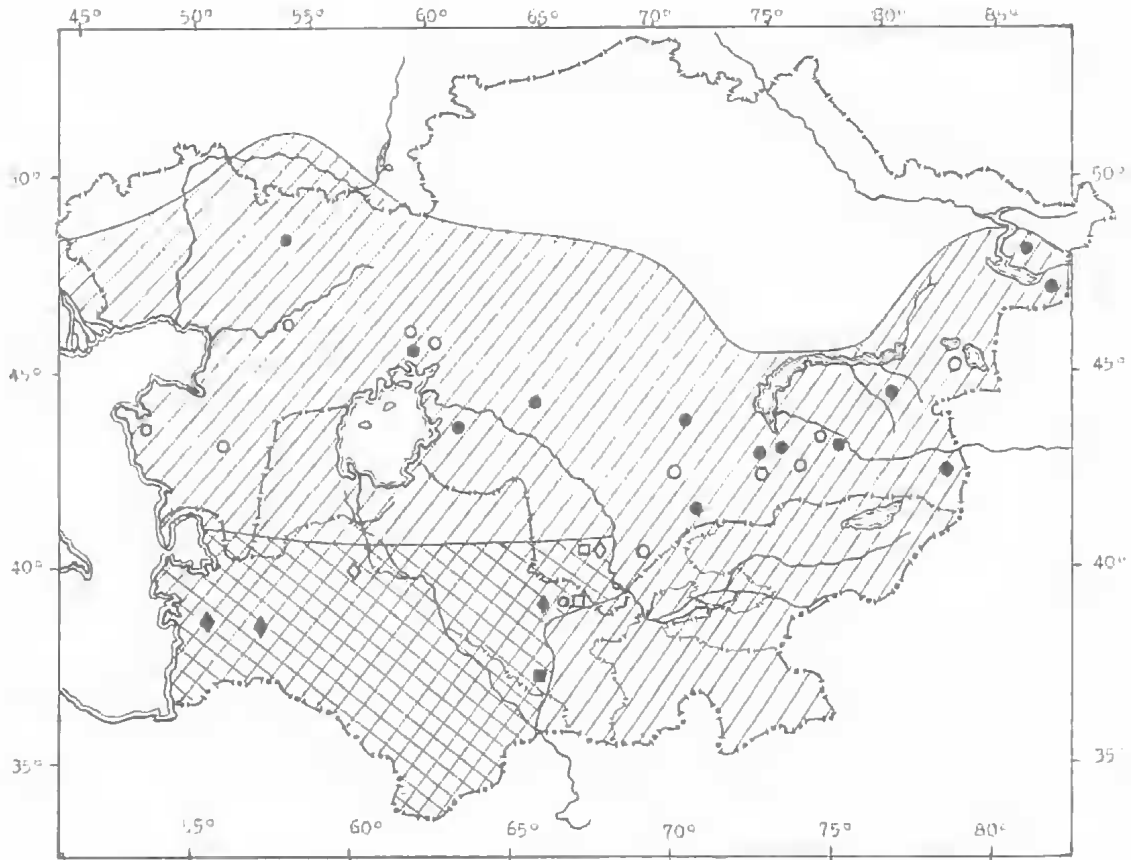


FIG. 1: Distribution of *Latrodectus* spp. in Kazakhstan and other Central Asian Republics. Legend: ○ = *L. tredecimguttatus*; □ = *L. dahlī*; ◇ = *L. pallidus pavlovskii*; oblique hatching = distribution of *L. tredecimguttatus* after Marikovskij (1956); cross hatching = suggested distribution of *L. pallidus* within the distribution of *L. tredecimguttatus*. Black figures = published data; white figures = original data.

RESULTS AND DISCUSSION

FAMILY THERIDIIDAE

Latrodectus Walckenaer

REMARKS

The northern border of the widow spiders' distribution within the former USSR seems to pass near 52°N (Fig. 1).

Latrodectus tredecimguttatus (Rossi) 'Karakurt'

REMARKS

Within the former USSR this species has been known under the names *L. conglobatus* C.L. Koch, *L. erebus* Savigny and Audouin, *L. lugubris* Motchoulsky, *L. tredecimguttatus* var. *lug-*

ubris (Dufour), etc. (Charitonov, 1932). Rossi-kov (1904) devoted a monograph to this species and Marikovskij (1956) analysed the biology and distribution of *L. tredecimguttatus* within the former USSR. According to this author, karakurts are found over almost all of Kazakhstan (Fig. 1). However, existing difficulties in the systematics of *Latrodectus* species (see Levi, 1983), as a rule, result in too wide an interpretation of their distribution. When investigating *Latrodectus* species, we found that adult females of *L. tredecimguttatus* from Italy had a light spotted abdomen while Kazakhstan specimens were completely black. Dr G. Schmidt (pers. comm.) considers the karakurt from Kazakhstan to be the species *Latrodectus lugubris* (Dufour) described from Egypt. Preliminary experiments on mating carried out in 1991 together with Mr D. Weickmann-Zwoerner (Germany) showed that

Kazakhstan specimens could not cross with European *L. tredecimguttatus* (two males from Kazakhstan were used).

At present the distribution of *L. tredecimguttatus* as delimited by Marikovskij (1956) must be revised, as we now suppose the traditional '*L. tredecimguttatus*' in Kazakhstan to be a separate species.

MATERIAL EXAMINED

Italy: 3 ♀, Lazio, near Priverno, 16 May 1962, fields and stones, H. Levi (MCZ). Kazakhstan and Central Asia: many males and females from different localities (IZA).

Latrodectus dahli Levi

REMARKS

This very localised species among the Central Asian republics occurs in Uzbekistan only (Tystshenko & Ergashev, 1974; Ergashev, 1990); in Kazakhstan, it was found by us first in the Kyzylkum Desert (two females, det. Dr Y.M. Marusik) (Fig. 1). We have compared our specimens with the female paratype of *L. dahli* from Iran and found their resemblance in the hairiness of the abdomen's dorsum (long slender spines and rather long setae between them: see also Tystshenko and Ergashev, 1974, fig. 3). Nevertheless, the epigynal opening in all our specimens is 4 times as wide as long, while in the female paratype it is only 3.4 times as wide as long; slight differences are also in the vulvae (cf. Levi, 1959, figs 11, 12; Tystshenko and Ergashev, 1974, figs 4, 5). As the male of *L. dahli* from the type locality is up to now undescribed, we cannot be sure that our specimens belong to real *L. dahli*.

MATERIAL EXAMINED

Iran: 1 paratype ♀, Bushire, Persian Gulf (MCZ). Uzbekistan: 1 ♂, 1 ♀, Kashkadarja Area, Karshi Steppe, N.E. Ergashev. Kazakhstan: 2 ♀, South Kazakhstan Area, Kyzylkum Desert, 77.5k NW of Chardara Vill., 5-6 Jun 1989, Tarabaev, Iyodorov, Zyuzin (IZA).

Latrodectus pallidus pavlovskii Charitonov (Fig. 1)

REMARKS

Within Kazakhstan, it was found by us first in the Kyzylkum desert, which is probably its northernmost limit. To clarify the taxonomic position of *L. pallidus pavlovskii*, thorough comparison of

our spiders with the type material or topotypes of *L. pallidus* is necessary.

MATERIAL EXAMINED

Turkmenistan: 1 ♀, Tashauz Area, Shakh-senem, under *Artemisia*, 9 Oct 1983, O.S. Soyunov. Uzbekistan: 4 ♀, Dzhizak Area, 'Kyzylkum' state farm, 16 Jul 1982, N.E. Ergashev. Kazakhstan: 1 ♀, South Kazakhstan Area, Kyzylkum Desert near Tabakbulak Vill., 24 Aug 1991, A.A. Zyuzin, B.M. Gubin (1 ♂, 2 ♀ of Tabakbulak population in laboratory) (IZA).

FAMILY ERESIDAE

Eresus Walckenaer

Eresus niger (Pctagna)

REMARKS

Published and original data on the distribution of this species within the Sibero-Kazakhstan-Central Asian region, in the European part of Russia (see Charitonov, 1932) and in Europe (see Bonnet, 1956) show that the northern limit of its area seems to pass near 56°N: thus, *E. niger* is theoretically distributed over the whole Kazakhstan and the Central Asian region. Preliminary analysis of material we have at our disposal show that at least three separate species of the '*Eresus niger*' complex occur in Kazakhstan (Fig. 2). The acute deficit of specimens of both sexes taken from the same place is the main obstacle to a detailed taxonomic study.

According to Merrett and Millidge (1992), the correct name for the species *Eresus niger* (Pctagna) is *Eresus cinnabarinus* (Olivier) (see also Lehtinen, 1967, p. 233).

MATERIAL EXAMINED

France: 2 ♂, 2 ♀ 2 juv., Col du Ceris, 15 Sep 1908; Banyuls, 31 May 1909 (MNHN, No. AR 838). Spain: 3 ♂, 4 ♀, La Granja, Jun 1908 (MNHN, No. AR 837). Mongolia: 1 ♂, 'Potanin, Schenkel det. 1946' (MNHN, No. AR 852). Hungary: 1 ♂, Csákberény, Veres, 20 Sep 1991, V.V. Dubatolov, V.G. Mordkovitch. Russia: 3 ♂, Bashkir Reserve, Bashart, I.V. Stebaev; 1 ♂, Novosibirsk Area, 13k W of Karasuk Vill., 7 Sep 1989; 5 ♂, ibidem, 27k SE of Zdvinsk Vill., Malye Chany Lake, 10 Sep 1989, V.P. Pekin. Turkmenistan: 1 ♂, Kopetdag Reserve, 15 May 1988, Karpenko; 2 ♂, 25 Aug 1988, ibidem, 15k W of Firyuza Vill., Mount Dushak, 2100 m; 1 ♂.

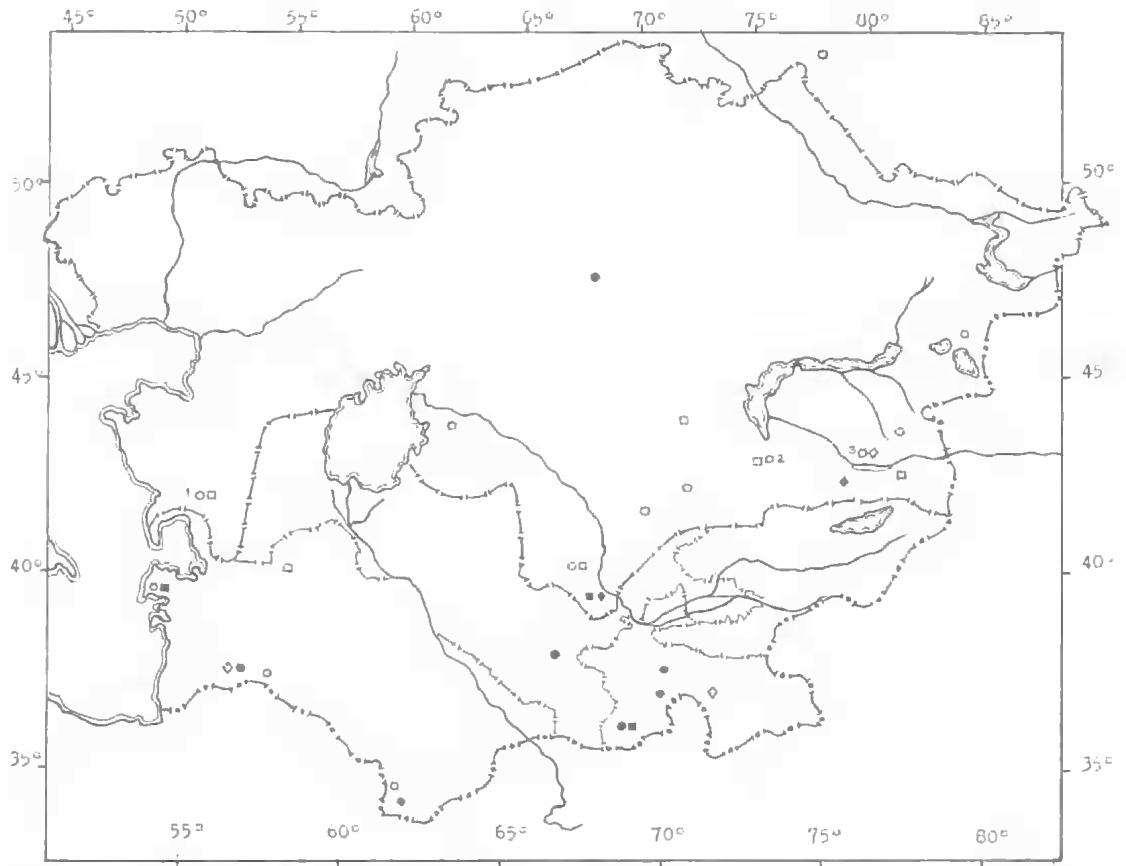


FIG. 2: Distribution of eresid spiders in Kazakhstan and other Central Asian Republics. Legend: ○ = '*Eresus niger*' complex: 1, 2, 3, = *E. sp.* 1, 2, 3 (see text); ◇ = *E. tristis*; □ = *Stegodyphus lineatus*. Black figures = published data; white figures = original data.

ibidem, Firyuza Vill., 3 Apr 1991, V.V. Dubatolov, V.K. Zinchenko; 1 ♂, Kugitang Range, 5k SE of Bazar Depe Vill., 13-19 May 1991, V.V. Dubatolov (all BIN). Kazakhstan: numerous ♂♂ ♀♀ from different parts of Kazakhstan (see Fig. 2) (IZA).

Eresus tristis Kroneberg

REMARKS

According to published data, this species was previously found only in southern and South-Eastern Kazakhstan (Kroneberg, 1875; Spassky and Shnitnikov, 1937); beyond the borders of the former USSR, *E. tristis* was found only in China by G.N. Potanin's expedition: see Simon (1895), 'la riv. Sotschshan au N. de la chaîne du Tjan-Shan'. [Charitonov (1932) wrongly placed this site within the former USSR territory].

Males of *E. tristis* can be readily separated from those of *E. niger* by the black colour of their

abdomen and legs (as in *E. niger* females), sometimes with white markings. Despite this very distinctive feature, *E. tristis* was recently synonymised with *E. niger* based on the similarity of their genitalia (see Nenilin and Pestova, 1986). However, our preliminary data showed sufficient differences of *E. tristis* from all of our 'red' males in the fine structure of the male palp; at the same time, black males from different parts of Kazakhstan and Central Asia have very similar palp structure. The main taxonomic problem is that the female of this species is up to now unknown.

MATERIAL EXAMINED

Kazakhstan: 1 ♂ holotype, South Kazakhstan Area, 'Syrdarja, the end of April', A.P. Fedtshenko's Turkestan Scientific Expedition by the Natural History Amateurs' Society (ZMMU No. Ta 1104); 1 ♂, Alma-Ata Area, 5k NE of Kapchagaj City, A.A. Fyodorov (IZA).

Turkemistan: 3 ♂, Western Kopetdag Ridge, near Kara-Kala Vill., 7 Feb 1979, I. Morozova (ZISP). Tadzhikistan: 1 ♂, 'turn to Chashma, 9.V.1986, Itka' (BIN).

Stegodyphus Simon

Stegodyphus lineatus (Latreille) (=*Eresus arenarius* Kroneberg)

REMARKS

This species was previously known from Turkmenistan, Uzbekistan and Southern Kazakhstan. We have found it considerably northwards and eastwards (Fig. 2).

MATERIAL EXAMINED

Many males and females from: Spain; Italy (Sicily); Algeria; Tunisia (Kairouan) (MNHN No. AR 785, 786); different parts of Kazakhstan and Central Asian republics (see Fig. 2) (IZA).

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